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MEMORANDUM

Date: June 6, 2002
To: McCullough Research Clients
From: Robert McCullough
Subject: PerotSystems ISO Presentation

On Wednesday, California State Senator Dunn released a copy of a presentation apparently made to a market participant by a PerotSystems representative. A story by Jon Kamp of Dow Jones indicates that the presentation was made to Reliant in June of 1998. The timing is consistent with the information contained in the presentation, but seems somewhat earlier than expected considering the understanding shown in pages 16 through 30 which contains a detailed discussion of the "target price" problems with the ISO's real time pricing methodology.

The most significant evidence in the timing of this memo is slide 41. The use of Silver Peak, a very small line across the Nevada border, in the example is critical, since this line was used to perform substantially the same game described here. The gaming of the Silver Peak line took place on May 25, 1999. It is very unlikely that a sophisticated presentation such as this would have described such a scheme after it had been tried, discovered, and was under disciplinary review.

Overall, this puts the timing of this presentation between June of 1998 and May of 1999. The sophistication of the target price discussion would tend to favor a later, rather than earlier, date.

Today, PerotSystems released two additional presentations. For the sake of simplicity, the three presentations are named "Reliant" for the original presentation and "Perot 1" and "Perot 2" for the two contained in PerotSystems 8K.

Internal evidence within the presentations indicates that Perot 1 and Perot 2 were made at least four

months and as much as sixteen months before the Reliant presentation.

The following table compares the three presentations. As can be quickly seen, the three presentations share many of the initial slides. These slides represent introductory comments concerning the basic environment. Perot 1 clearly took place before the start of the California market. It repeatedly references January 1, 1998. In fact, the market started four months late on April 1, 1998. Both Perot 1 and Perot 2 mention the “target price” problem. Neither mentions the adjustment later adopted to eliminate the “dip” that could take place between decremental and incremental prices.

The Reliant presentation shows a far more detailed understanding of ISO mechanics in the later part of the material. The gray area at the bottom of the chart shows the Silver Peak example. This example is only present in the Reliant presentation.

Reliant Presentation	Perot 1 Presentation	Perot 2 Presentation
CALIFORNIA MARKET STRUCTURE	Perot Systems CALIFORNIA MARKET STRUCTURE	CALIFORNIA MARKET STRUCTURE
WINNING IN CALIFORNIA MARKETS	WINNING IN CALIFORNIA MARKETS	
UNDERLYING ECONOMIC THEORY	UNDERLYING ECONOMIC THEORY	
AUCTION THEORY	AUCTION THEORY	
REALITY VS. ECONOMIC THEORY	REALITY VS. ECONOMIC THEORY	
REALITY VS. AUCTION THEORY	REALITY VS. AUCTION THEORY	
BUSINESS RULES		
STRATEGIC DECISIONS IN CALIFORNIA	STRATEGIC DECISIONS IN CALIFORNIA	Decisions in California Markets
		Simple Models and Simple Strategies
		California Market Protocols
STEPS IN DEVELOPING STRATEGIES	STEPS IN DEVELOPING STRATEGIES	
ANALYSIS OF PROTOCOLS	ANALYSIS OF PROTOCOLS	Imperfections in the Protocols
		Theory is not Reality
DEVELOPMENT OF PRACTICAL STRATEGIES	DEVELOPMENT OF PRACTICAL STRATEGIES	DEVELOPMENT OF PRACTICAL STRATEGIES
ANALYTICAL BUSINESS MODEL	ANALYTICAL BUSINESS MODEL	ANALYTICAL BUSINESS MODEL
DEVELOPING STRATEGIES	DEVELOPING STRATEGIES	DEVELOPING STRATEGIES
		Steps In Developing Strategies
CHANGING PROTOCOLS	CHANGING PROTOCOLS	CHANGING PROTOCOLS
ONGOING PROCESS	ONGOING PROCESS	ONGOING PROCESS
	Our Capabilities	Our Capabilities
	Project Tasks and Deliverables	
	Project Tasks and Deliverables	
	Project Tasks and Deliverables	
	What We Can Offer	
	Example of Gap in Protocols	Following Slides Show A Simple Example
		Example of Gap in Protocols

	Simple Example. Simple Example Taking Advantage f the Gap	Simple Example. Simple Example Taking Advantage f the Gap
EXAMPLE OF A PROTOCOL GAP		
MERIT ORDER STACK		
EX POST PRICE WHEN OUTPUT		
IS INCREASED		
EX POST PRICE WHEN OUTPUT		
IS DECREASED		
OUTPUT INCREASES THEN		
DECREASES IN HOUR		
CONTROLLING THE REAL-TIME		
MARKET		
SIMPLIFIED EXAMPLE		
SCHEDULE AND SUPPLEMENTAL		
BIDS		
CASE 1: ISO NEEDS ADDITIONAL		
ENERGY		
CASE 2: ISO MUST REDUCE		
OUTPUT		
EFFECTS ON OTHER		
PARTICIPANTS		
EFFECTS ON PX		
EFFECTS ON ISO		
ISO's Correction		
RE-PRICED MERIT ORDER STACK		
ANOTHER PROTOCOL GAP		
SCHEDULES AND ADJUSTMENTS		
BIDS		
EXAMPLE WITH CONGESTION		
MARKET SEPARATION		
EXAMPLE WITH CONGESTION		
RESCHEDULE TO RELIEVE		
CONGESTION		
CONGESTION USAGE CHARGES		
AND ZONAL MARGINAL COSTS		
PX ZONAL ENERGY PRICES		
CHECK OF MARGINAL COSTS		
FOR PX		
HOLE IN PX PROTOCOL		
GAME ...		
... GAME ...		
... GAME		
CORRECTIONS		

In conclusion, Perot 1 and 2 appear to predate the onset of the California ISO. In the case of Perot 1, this conclusion is clear because of the incorrect date given for the start of the market. Perot 2 has very similar examples and also does not mention any target price adjustments to the real time market.

The Reliant presentation clearly takes place after the start of the market. The Reliant presentation

is considerably more aggressive. It describes fully fleshed out schemes, including Silver Peak which took place a full year after the start of the PX and the ISO.